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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

YANG, RYAN R

ART UNIT	PAPER NUMBER
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2672

DATE MAILED: 12/27/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/385,822

Applicant(s)

SZYMANIAK, MARKUS

Examiner

Ryan R Yang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☒ Claim(s) 5-15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6. 6) ☐ Other:

DETAILED ACTION

1. Claims 1-15 are pending in this application. Claim 1 is independent claim. This action is non-final.
2. The present title of the invention is "Method and Apparatus for Eliminating Unwanted Steps at Edges in Graphic Representations in the Line Raster".

Drawings

3. The drawings are objected to because the descriptions in the figures are in foreign language. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. This application is informal in the arrangement of the specification. The following guidelines illustrate the preferred layout and content for patent applications. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

5. The following order or arrangement is preferred in framing the specification and, except for the reference to the drawings, each of the lettered items should appear in upper case, without underling or bold type, as section headings. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

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- (a) Title of the Invention.
- (b) Cross-Reference to Related Applications.
- (c) Statement Regarding Federally Sponsored Research or Development.
- (d) Reference to a "Sequence Listing," a table, or a computer program listing appendix submitted on compact disc (see 37 CFR 1.52(e)(5)).
- (e) Background of the Invention.
 - 1. Field of the Invention.
 - 2. Description of the Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) Brief Summary of the Invention.
- (g) Brief Description of the Several Views of the Drawing(s).
- (h) Detailed Description of the Invention.
- (i) Claim or Claims (commencing on a separate sheet).
- (j) Abstract of the Disclosure (commencing on a separate sheet).
- (k) Drawings.
- (l) Sequence Listing, if on paper (see 37 CFR 1.821-1.825).

6. The disclosure is objected to because of the following informalities: On page 28, line 3, the disclosure "Table 1-3" has no corresponding tables shown.

Appropriate correction is required.

7. Claims 5-15 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Edelson (4,704,605).

As per claim 1, Edelson discloses a method of eliminating unwanted steps at edges in image representations in the line raster, in particular in on-line operation, characterised by the steps:

a) Application of an edge operator to an image portion for coarsely ascertaining at least one rastered edge configuration ("When drawing the edge, the computer is typically moving up the edge, adding a small increment to the horizontal position of the edge on the previous scan line to calculate the horizontal position of the edge on the new scan line" and, as an example, when the pixel number=32.54, the computer would traditionally decide to use pixel #33, column 5, line 58-68),

b) Determining the position of at least a first pixel from the amount of those pixels which form the rastered edge configuration or adjoin said rastered edge configuration ("When an image is input, the edge of an object having the color value of "1" affects pixel C, and pixel C is the first pixel in the row which changes", column 4, line 41-44),

c) Approximation of a straight line for ascertaining a probable configuration of the unrastered image edge in the proximity of the first pixel ("When drawing the edge, the computer is typically moving up the edge, adding a small increment to the horizontal position of the edge on the previous scan line to calculate the horizontal position of the edge on the new scan line. This calculation must be carried out to a fractional part of a

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pixel to avoid rounding errors in subsequent position calculations", column 5, line 58-64),

d) Ascertaining a criterion from the approximation straight line and the position of the first pixel for mixing a color X to the color C in the first pixel considered (using LUT such as table 1, also see the method delineated to use the table in column 4, line 34-66), and *C5, line 40-45*

e) Mixing the ascertained color X to the color C in the first pixel considered (The method mentioned in column 4, line 34-64 is for mixing the old and new color).

10. As per claim 2, Edelson demonstrated all the elements as applied in the rejection of independent claim 1, *supra*, and further discloses the criterion of method step d), in dependence on the position of the pixel being considered relative to the approximation straight line, establishes which color X is mixed to the color C of the pixel being considered (The results of line generation disclosed in column 5, line 58-62, produce a fractional number, such as 32.54, which is a position of the line related to that number. "With the ability to mix, the result "32.54" can be interpreted as "pixel #33 should be shaded with 54% old color and 46% new color", column 6, line 3-5).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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12. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edelson (4,704,605) as applied to claim 1 above, and further in view of Steiner et al. (5,668,940).

As per claim 3, Edelson demonstrated all the elements as applied in the rejection of dependent claim 2, *supra*.

It is noted that Edelson does not explicitly disclose the criterion in accordance with method step d), in dependence on the position of the pixel being considered relative to the approximation straight line, establishes that the color of at least one adjacent pixel is mixed in weighted mode to the color of the pixel being considered, however, this is known in the art as taught by Steiner et al., hereinafter Steiner. Steiner disclose that in an apparatus for anti-aliasing polygon edges weighted color is used for computing the pixel color (Figure 5e 95).

Thus, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Steiner into Edelson because Edelson discloses a way of mixing color for anti-aliasing edges and Steiner disclose a way to make a higher-definition edge effects by using weighted color (column 2, line 57).

13. As per claim 4, Edelson and Steiner demonstrated all the elements as applied in the rejection of claims 1-3, *supra*, and Edelson further discloses that in the case of a pixel being considered which is not intersected by the approximation straight line, the color remains unchanged (Figure 4, and "Pixel AA, BB, EE, and FF are unaffected by the object and retain their value of 0:0", column 5, line 37-38).

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Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Inquiries

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Ryan Yang** whose telephone number is **(703) 308-6133**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Michael Razavi**, can be reached at **(703) 305-4713**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Ryan Yang
December 19, 2001


JEFFERY BRIER
PRIMARY EXAMINER